

Appl. No. 10/033,205
Amdt. dated September 9, 2003
Reply to Office Action of March 10, 2003

REMARKS/ARGUMENTS

In the Office Action mailed March 10, 2003, claims 1-22 were examined. Claims 1-22 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Claims 1-4, 6-10, and 13-22 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 5,948,862 to Sano et al. ("the Sano patent"). Also, claims 1-11 and 13-22 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 6,359,065 to Yabuki ("the Yabuki patent"). In addition, claims 1-3, 5-12, and 15-22 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 5,717,014 to Ohkawachi et al. ("the Ohkawachi patent"). Furthermore, claims 1-3, 5-7, 9-12, and 15-22 were rejected under obviousness-type double patenting, as being allegedly unpatentable over claims 10 and 28 of U.S. Patent No. 6,508,725 to Kim ("the Kim patent").

Applicant respectfully traverses the rejections of the claims, for the reasons set forth below.

The Invention

Before addressing the specific claim rejections, it will be helpful first to briefly summarize the invention of the pending claims.

The invention is embodied in a golf ball component selected from the group consisting of a core, a cover, and an intermediate layer located between a core and a cover, the golf ball component incorporating a particular triblock copolymer, a base polymer, and a

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polymeric modifier. The triblock copolymer has a first polymer block comprising an aromatic vinyl compound. The triblock copolymer also includes a second polymer block, which includes a first compound selected from the group consisting of a diene compound and a hydrogenation product of the diene compound. In addition, the triblock copolymer includes a third polymer block including a second compound selected from the group consisting of a diene compound, a hydrogenation product of the diene compound, and an aromatic vinyl compound. Furthermore, the triblock copolymer includes at least one hydroxyl group. The polymeric modifier is selected from the group consisting of an impact modifier, a functionalized polymer, or a mixture of these. The functionalized polymer incorporates a copolymer or a terpolymer having a glycidyl group, hydroxyl group, maleic anhydride group or carboxylic group, or a mixture of these copolymers and terpolymers.

The base polymer can incorporate an ionomeric polymer comprising copolymeric polymers, terpolymeric polymers, or mixtures of these. The base polymer also can incorporate a non-ionomeric polymer. The ratio by weight of the triblock copolymer to the base polymer in the golf ball component preferably ranges between about 10:90 and about 90:10, more preferably between about 10:90 and about 70:30, and most preferably between about 10:90 and about 60:40.

When incorporating the impact modifier, the golf ball component incorporates the impact modifier in an amount between about 0.1 and about 15 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, and more preferably between about 1 and about 10 parts per hundred. Particularly preferred impact modifiers include acrylic impact modifier, ethylene vinyl acetate, polyaryl ether, acrylonitrile-butadiene-styrene, methacrylate-butadiene-styrene, chlorinated polyethylene, or mixtures of these. Particularly preferred acrylic impact modifier includes methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl

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hexylacrylate styrene, or mixtures of these. When incorporating the functionalized polymer, the golf ball component preferably incorporates the functionalized polymer in an amount between about 0.1 and about 15 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, more preferably between about 1 and about 10 parts per hundred. The golf ball component preferably incorporates a total amount of polymeric modifier less than about 20 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, and more preferably less than about 15 parts per hundred.

Golf ball components within the scope of the present invention also can incorporate UV stabilizers, photostabilizers, photoinitiators, co-initiators, antioxidants, colorants, dispersants, mold releasing agents, processing aids, inorganic fillers, organic fillers, or mixtures thereof.

The invention also resides in a method for making a golf ball component selected from the group consisting of a core, a cover, and an intermediate layer located between a core and a cover, the method including preparing a composition comprising the above-specified triblock copolymer, a base polymer, and a polymeric modifier as defined above, and then incorporating the composition into the golf ball component. The step of preparing the composition can incorporate dry-blending the composition, or it can incorporate mixing the composition using a mill, internal mixer, or extruder. The step of mixing the composition also can incorporate melting the composition.

The Rejection of Claims 1-22 Under 35 U.S.C. § 112, Second Paragraph

On page 2 of the Office Action, claims 1-22 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. In particular, the Examiner stated:

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It is unclear what "golf ball layer" requires. Is a golf ball being claimed that has a certain layer? Is merely a layer or sheet being claimed that has a future potential of being used in a golf ball? Is a certain shape required? Does any shape smaller than 1.6 inches meet the claim?

The claims call for a triblock polymer, yet only describe two blocks. What is the third block?

Claims 2 and 3 are directed to a golf ball layer itself. Specifically what other layers may or may not be present are irrelevant to the layer itself.

Claim 1 and 18 call for a hydroxyl group to be located at a block copolymer. It is unclear what effect "at a block copolymer" has on the claim. Is the hydroxyl on the triblock copolymer (a) and some un-mated block copolymer? How is this possible?

Claim 22 lacks antecedent basis for "the preliminary composition."

Applicant respectfully traverses these rejections.

Applicant has amended independent claims 1 and 18 to remove the word "layer" and the phrase "located at a block copolymer." Also, Applicant has amended claims 1 and 18 to add a third polymer block to the triblock copolymer. Support for the amendments to claims 1 and 18 is found, *inter alia*, in the specification on page 2, lines 12-13; page 3, line 23; to page 4, line 3; page 7, lines 9-16; and page 11, lines 18-21. Accordingly, the amendments made to claims 1 and 18 add no new matter to the claims. Applicant has canceled claims 2, 3, and 22, and, thus the Examiner's rejections of those claims are moot. Applicant believes that claims 1 and 4-21 comply with § 112, second paragraph, and respectfully request withdrawal of these grounds of rejection.

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The Rejection of Claims 1-4, 6-10, and 13-22 Based on the Sano Patent

On page 3 of the Office Action, independent claims 1 and 18, and dependent claims 2-4, 6-10, 13-17, and 19-22, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Sano patent. Applicant has canceled claims 2, 3, and 22, and, thus the Examiner's rejections to those claims are moot. Applicant respectfully traverses these rejections of remaining claims 1, 4, 6-10, and 13-21.

The Sano patent discloses a golf ball having a core, one or more intermediate layers, and a cover. The intermediate layer is formed of a heated mixture including at least two of the following: an ionomer resin, a thermoplastic elastomer having terminal OH groups, and an epoxy-group. The epoxy-group includes styrene-butadiene-styrene block copolymer or styrene-isoprene-styrene block copolymer.

Regarding the Sano patent, the Examiner on page 3 of the Office Action stated:

Sano exemplifies (table 2) compositions for intermediate layers of golf balls. The composition contains ionomer (applicant's base), HG-252 (applicant's hydroxylated block polymer) and epoxidized block polymer.

The epoxidized [sic] block polymer qualifies as an impact modifier because it affects durability (col. 4 line 3). It also qualifies as a functional copolymer.

However, Applicant submits that the Sano patent fails to teach or suggest "a polymeric modifier selected from the group consisting of: (i) an impact modifier, (ii) a functionalized polymer . . . ,

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and (iii) mixtures of the impact modifier and the functionalized polymer," as required by amended independent claims 1 and 18. More specifically, the epoxidized block polymer (see column 3, lines 31-45) taught in the Sano patent is not one of the materials defined in the specification of the present application as suitable for use as either an impact modifier or a functionalized polymer. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Sano patent to satisfy the requirements of independent claims 1 and 18. For these reasons, the § 102 rejection, or, in the alternative, the § 103 rejection, of independent claims 1 and 18, and dependent claims 4, 6-10, 13-17, and 19-21, is improper and should be withdrawn.

The Rejection of Claims 1-11 and 13-22 Based on the Yabuki Patent

On page 3 of the Office Action, independent claims 1 and 18, and dependent claims 2-11, 13-17, and 19-22, were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Yabuki patent. Applicant has canceled claims 2, 3, and 22, and, thus the Examiner's rejections to those claims are moot. Applicant respectfully traverses these rejections of remaining claims 1, 4-11, and 13-21.

The Yabuki patent teaches a golf ball having a solid core and a cover formed from a heated mixture of: an ionomer resin, a thermoplastic elastomer having a carboxyl group or a terminal OH group, and a block copolymer. The block copolymer has a styrene-butadiene-styrene structure or a styrene-isoprene-styrene structure.

Regarding the Yabuki patent, the Examiner on page 3 of the Office Action stated:

Yabuki exemplifies (#7) blends of ionomer, HG-252, Himilan 1855 and epoxidized block polymer. Either of the

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Himilan 1855 and epoxidized block polymer qualify as applicant's modifier. Himilan 1855 is a partially neutralized ethylene /acrylate/ methacrylic acid terpolymer. It has acrylate groups and carboxylic functional groups. Either of the Himilan 1855 [sic] and epoxidized block polymer can qualify as part of applicant's base polymer (b).

However, Applicant submits that the Yabuki patent fails to teach or suggest "a polymeric modifier selected from the group consisting of: (i) an impact modifier, (ii) a functionalized polymer . . . , and (iii) mixtures of the impact modifier and the functionalized polymer," as required by amended independent claims 1 and 18. More specifically, neither the Himilan 1855 (see column 10, line 66, to column 11, line 3), nor the epoxidized block polymer (see column 5, line 16, to column 6, line 9), taught in the Yabuki patent satisfy the materials defined in the specification of the present application as suitable for use as either an impact modifier or a functionalized polymer. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Yabuki patent to satisfy the requirements of independent claims 1 and 18. For these reasons, the § 102 rejection, or, in the alternative, the § 103 rejection, of independent claims 1 and 18, and dependent claims 4-11, 13-17, and 19-21, is improper and should be withdrawn.

The Rejection of Claims 1-3, 5-12, and 15-22 Based on the Ohkawachi Patent

On pages 3 and 4 of the Office Action, independent claims 1 and 18, and dependent claims 2-3, 5-12, 15-17, and 19-22, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Ohkawachi patent. Applicant has canceled claims 2, 3, and 22, and, thus the Examiner's rejections to those claims are moot. Applicant respectfully traverses these rejections of remaining claims 1, 5-12, and 15-21.

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The Ohkawachi patent, as stated in column 2, lines 23 to 35, teaches:

a PPE [polyphenylene ether] resin composition containing the following Components (A) to (D) at the following formulation ratio.

(A) 50 to 99.5 parts by weight PPE

(B) 0.5 to 50 parts by weight of a partially hydrogenated aromatic alkenyl compound-conjugated diene block copolymer having a hydroxy group based on the total amount of Components (A) and (B) being 100 parts by weight.

(C) 0 to 950 parts by weight of a thermoplastic resin other than the above (A) and (B) and

(D) 0 to 10 parts by weight of a phosphorous acid triester.

Regarding the Ohkawachi patent, the Examiner on page 4 of the Office Action stated:

Ohkawachi exemplifies (#4) a blend of PPE (applicant's polyarylether impact modifier) HG-252 (applicant's block polymer) and PBT (applicant's base polymer) [sic]. The composition can be used for plates, side protectors etc (col. 2 line 16). This qualifies as a "layer".

However, Applicant submits that the Ohkawachi patent fails to teach or suggest "a polymeric modifier selected from the group consisting of: (i) an impact modifier, (ii) a functionalized polymer . . . , and (iii) mixtures of the impact modifier and the functionalized polymer," as required by independent claims 1 and 18. More specifically, the PPE taught in the Ohkawachi patent does not satisfy the materials defined in the specification of the present application as suitable for use as either an impact modifier or a functionalized polymer. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Ohkawachi patent to satisfy the requirements of independent claims 1 and 18. For these reasons, the § 102 rejection,

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or, in the alternative, the § 103 rejection, of independent claims 1 and 18, and dependent claims 5-12, 15-17, and 19-21, is improper and should be withdrawn.

The Rejection of Claims 1-3, 5-7, 9-12, and 15-22 Under Obviousness-Type Double Patenting

On page 4 of the Office Action, independent claims 1 and 18, and dependent claims 2, 3, 5-7, 9-12, 15-17, and 19-22, were rejected under obviousness-type double patenting as being allegedly unpatentable over claims 10 and 28 of the Kim patent. Applicant has canceled claims 2, 3, and 22, and, thus the Examiner's rejections to those claims are moot. Applicant respectfully traverses this rejection of remaining claims 1, 5-7, 9-12, and 15-21.

Regarding the Kim patent, the Examiner on page 4 of the Office Action stated:

Although the conflicting claims [of the Kim patent] are not identical, they are not patentably distinct from each other because the patent claims golf ball materials of polyamide, PPE and a hydroxylated styrene/diene block polymer. The polyamide qualifies as applicant's base and PPE qualifies as applicant's impact modifier.

However, Applicant submits that the polyamide/polyphenylether ("PPE") alloy taught in claims 10 and 28 of the Kim patent are patentably distinct from the "polymeric modifier selected from the group consisting of: (i) an impact modifier, (ii) a functionalized polymer . . . , and (iii) mixtures of the impact modifier and the functionalized polymer . . . ," required by independent claims 1 and 18 of the present application. More specifically, the claims of the Kim patent are patentably distinct from the requirements of independent claims 1 and 18, because the PPE disclosed in claims 10 and 28 of the Kim patent does not satisfy the materials defined in the specification of the present application as suitable for use as either an impact modifier or a functionalized polymer.

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Furthermore, claims 10 and 28 of the Kim patent are patentably distinct from independent claims 1 and 18 in the present application, because it would not have been obvious to one skilled in the art to modify claims 10 and 28 of the Kim patent to satisfy the requirements of independent claims 1 and 18. For these reasons, the obviousness-type double patenting rejection of independent claims 1 and 18, and dependent claims 5-7, 9-12, 15-17, and 19-21, is improper and should be withdrawn.

Conclusion

This application should now be in condition for a favorable action. Allowance of the application is respectfully requested. If for any reason the Examiner finds the application other than in allowance, the Examiner is requested to call the undersigned attorney at the below-indicated telephone number to discuss the steps necessary for placing the application in condition for allowance. If there are any fees due in connection with the filing of this Amendment, please charge the fees to our Deposit Account No. 19-1853.

Respectfully submitted,
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